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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,894	11/26/2003	Prathyusha K. Salla	132958XX-C/YOD GEMS:0263	1160
7590	11/17/2006		EXAMINER SOLANKI, PARIKHA	
Patrick S. Yoder FLETCHER YODER P. O. Box 692289 Houston, TX 77269-2289			ART UNIT 3737	PAPER NUMBER

DATE MAILED: 11/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/723,894	Applicant(s) SALLA ET AL.	
	Examiner Parikha Solanki	Art Unit 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☒ Claim(s) 2,4,6,8,10,12,14,16,18,20,22,24,26,28,30 and 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Specification***

1. The disclosure is objected to because of the following informalities: on page 1, paragraph 3, the disclosure recites "Gating techniques that use organ motion information to time the acquisition of imaging data are known as prospective gating techniques. Conversely, those that use organ motion information to time the acquisition of imaging data are known as retrospective gating techniques." This recitation suggests that prospective and retrospective gating are identical, and as such the description is contradictory, as it is known that they are two distinct processes. Examiner suggests that Applicant amend paragraph 3 of page 1 of the specification so as to provide clear and accurate definitions for prospective and retrospective gating as they are commonly practiced in the art.

Line 2 of page 3 contains a typographical error. Examiner suggests the phrase "may used" should be replaced with "may be used."

Line 19 of page 14 of the specification contains typographical errors. Examiner suggests the word "date" should be replaced with "data," and the word "equate" should be replaced with "equated."

Appropriate correction is required.

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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1. Claims 1-16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 and 17-24 of copending Application No. 10/723,857. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the instant application are merely broader than those of the co-pending application. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993) for pertinent case law.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

2. Claims 17-32 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 17-32 of copending Application No. 10/723,857, in view of Rogers (US Patent No. 5,477,144). Although the conflicting claims are not identical, they are not patentably distinct from each other. Claims 17-32 of the co-pending application disclose all limitations of claims 17-32 of the present invention, with the exception of specifying that the imager is an MR system and that the non-electrical sensor(s) is used to acquire cardiac motion data. In the same field of endeavor, Rogers ('144) teaches a system and method for retrospectively-gated cardiac MR imaging, using non-electrical sensors to acquire cardiac motion data (col. 5 lines 53-63). It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system and methods of the co-pending application to employ an MR imager and non-electrical cardiac sensors, in order to eliminate interference between the magnetic field and the sensors, in view of the teachings of Rogers ('144). See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993) for pertinent case law.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Objections

3. Examiner hereby groups the claims of the instant application as follows:

I. Claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31

II. Claims 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32

The claims of group II are objected to under 37 CFR 1.75 as being substantial duplicates of the claims of group I. The steps and features recited in the claims of group II for reconstructing image data are considered obvious over the embodiments recited in the claims of group I. It is known in the art that raw image signal data itself does not produce an image

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without first being reconstructed, and methods for such reconstruction are also well-known in the art. Examiner suggests that Applicant cancel all claims of either group I or group II to eliminate duplicate claims from this application. Appropriate correction is required.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1, 2, 9, 10, 17, 18, 25 and 26 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. As set forth in the USPTO Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility, published on 26 October 2005, a method without a tangible, useful and concrete result is considered non-statutory subject matter. Examiner hereby directs Applicant's attention to pages 19-22 of these Guidelines for further explanation of what constitutes a tangible, useful and concrete result.

Claims 1, 2, 9, 10, 17, 18, 25 and 26 recite steps for "a method for processing image data." These steps provide no useful, concrete or tangible result as set forth by the above-noted Guidelines. Examiner suggests that Applicant modify these claims to include one or more steps for planning therapy for the patient being imaged based on the data acquired and processed by the current methods described by these claims. Examiner respectfully reminds Applicant that the mere step of diagnosing disease based on image data will not remedy the statutory deficiencies of these claims.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002

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do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

7. Claims 1-8 and 25-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Larson (US PG Pubs. No. 2004/0155653). Larson ('653) discloses a method and system for gated cardiac MR imaging in which the images are synchronized to the beating of the heart or respiration of the lungs, equivalent to the two or more organs claimed in the instant application, wherein the image data and motion data are acquired substantially simultaneously (Figs. 1, 6 & 7, Abstract, ¶ [0044]). Larson ('653) states that the imaging data may be retrospectively synchronized to the cardiac motion data, and that the method may be performed over a single breath hold (¶ [0010], (¶ [0051], Fig. 6). The MR imaging data of Larson ('653) is equivalent to both the image data and motion data claimed in the method and system of the instant application (¶ [0010]). The MR imaging system disclosed by Larson ('653) is equivalent to an electrical sensor, and the start and end times of the single breath hold are equivalent to the two retrospective gating points (¶ [0010]). Larson ('653) further discloses steps for reconstructing the image data from raw k-space data (¶ [0042]).

Regarding the computer program and MR imaging system claimed in the instant application, Larson ('653) discloses using a conventional MR system to perform the retrospective cardiac image gating method (¶ [0053]). It is known that, in the state of the art at the time of invention, a conventional MR system included an imager, data acquisition circuitry for acquiring and processing motion image signals, system control circuitry for operating the imager, an operator workstation for communicating with the system control circuitry, a sensor-based motion measurement system as claimed in the instant application, and computer programs including routines for operating all of the above-noted components.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. Claims 9-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson (US PG Pubs. No. 2004/0155653) in view of Rogers (US Patent No. 5,477,144). Larson ('653) teaches all features of the present invention as described above in paragraph 7 of the instant Office Action. Larson ('653) further teaches that cardiac motion image data may be synchronized with respiratory motion data (§ [0063]). Larson ('653) does not provide non-electrical sensors for acquiring the cardiac motion image data.

In the same field of endeavor, Rogers ('144) provides a method and system for retrospectively-gated cardiac MR imaging with motion artifact correction, including the synchronization of respiratory motion data with cardiac motion data, as acquired by a pressure transducer, an acoustic microphone, a piezoelectric crystal transducer, all of which are non-electrical (col. 5 lines 53-63). Larson ('653) teaches that the use of cardiac motion sensors other than an ECG during imaging is desirable, because it avoids the problem of interference between the cardiac motion sensors and the magnetic field of the MR imaging system (§ [0003], § [0013]). In light of the motivation provided by Larson ('653), it would have been obvious to one of ordinary skill in the art at the time of invention to modify the method and system of Larson ('653) to employ the non-electrical cardiac motion sensors provided by Rogers ('144).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Epstein et al (US Patent No. 5,997,883), Spraggins et al (US Patent No. 4,961,426), Stergiopoulos et al (US PG Pubs. No. 2004/0102695) and Hedlund et al (US PG Pubs. No. 2002/0156371) teach related methods and systems for acquiring and gating cardiac MR data to correct for organ motion artifact.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parikha Solanki whose telephone number is 571.272.3248. The examiner can normally be reached on M-F, 8 - 4:30pm.

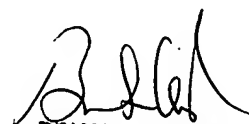
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571.272.4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Parikha Solanki
Examiner - Art Unit 3737



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